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BOOK REVIEWS

DORMANCY AND THE SURVIVAL OF PLANTS, by Trevor A. Villiers. Studies in Biology No. 57. London, Edward Arnold, 1975. 68 pp. Price £2,80 (hard cover).

This book, written by an acknowledged expert in the field of dormancy, covers ten short chapters, dealing with: the dormant state; climate and survival; structural modifications in dormancy; resistance of dormant organisms; control of entry into dormancy; types of seed dormancy; metabolism during dormancy; biochemical controls and dormancy; emergence from dormancy; and conclusions.

As the chapter headings indicate, just about every facet of dormancy worth considering is discussed. This is done in an easily readable style, well illustrated with graphs, tables, line drawings and schematic representations. As a well-balanced introduction to the subject it can hardly be improved upon (bearing in mind, of course, the space restrictions applicable to a book in this series). Particular attention is given to the role of hormones in the induction, maintenance and termination of dormancy, in conjunction with the environmental "triggers" involved, but I think that the views of Vegis in this regard could have received some more attention, even in a book at this level.

This book is clearly not intended for specialists on the subject of dormancy, but even they can benefit from its reading. It can be highly recommended for undergraduate students in plant physiology and horticulture, and should make very useful reading for all botanists and plant scientists in general.

J. A. DE BRUYN

COMPOSITAE IN NATAL, by O. M. Hilliard, with pp. xi+659 incl. 25 pp. line drawings. Pietermaritzburg: University of Natal Press, 1977. R24,00. (Orders to: University of Natal Press, P.O. Box 375, 3200 Pietermaritzburg, South Africa. American and Canadian orders to: Laurence Verry, Inc., Mystic, Connecticut 06355, U.S.A.).

More than a century has elapsed since the appearance of Harvey's classical treatment of the Compositae in *Flora Capensis*. Perhaps another century will have gone before the ambitious, new *Flora of Southern Africa* is finished. Under these circumstances a modern regional account of a large family is most welcome. Dr O. M. Hilliard's *Compositae in Natal* must be added to the list of standard works on the South African flora. The present volume also paves the way for the complete treatment of the family in the new flora.

As someone who has studied the South African Compositae, particularly in Natal, for a long time now, Dr Hilliard was certainly the right person to undertake such a comprehensive task. During many years of field work she has discovered numerous undescribed species and many new records for Natal. Moreover, she has critically revised the material in herbaria both at home and overseas, a most laborious task. Part of the original research which preceded this volume has been published in a series of joint papers with B. L. Burtt (see: Notes Roy. Bot. Gard. Edinb., 1970—).

Not surprisingly, the Compositae is the largest family of flowering plants found in Natal province. The present account deals with no fewer than 640 species, belonging to 113 genera. They include constituents of most of the vegetation types present in the province, covering a wide range of habitats from littoral scrub to the alpine heaths of the highest mountains in South Africa. Weeds and aliens are also covered, with notes on their origins and other useful information. The text provides determination keys, full generic and specific descriptions, notes on geographical distribution, ecology and flowering times, and frequent taxonomic comments, e.g. on infraspecific variation and nomenclature. Although the generic descriptions are modelled on those of Bentham, the sequence adopted is that of Dalla Torre and Harms. The precise and accurate specific descriptions are all original. All types seen by the author are fully cited and the relevant synonyms given, also with types.

The primary aim of the book is to aid accurate identification, for which purpose good alternative keys are given. There is a general key to all genera, but one can also proceed via the key to the tribes followed by the generic keys for each tribe. There are also keys down to species level for all genera which include more than one species.

The classical 13 tribes are recognized and all are represented, although in some cases only by introduced species (Heliantheae, Helenieae, Cardueae). The author is well aware of the current conflict of opinions on tribal circumscription, but she has wisely adopted a conservative taxonomic frame-work.

The line drawings are both accurate and artistically appealing, and more would have been very welcome. A useful feature is the introductory series of drawings, explaining the niceties of synantherological terminology. On the inside covers of the strongly cloth-bound volume are two survey maps. A comprehensive index to all taxa, including synonyms, completes the text. Relevant bibliographical references are given in the headings to genera and species, sometimes also in the commentaries.

This important publication is obviously indispensable to all students of South African Compositae, but will also be of great interest to taxonomists and phytogeographers in general. Ecologists, agriculturists, gardeners and biology teachers will also find much useful information in this book, which will undoubtedly attract considerable attention far outside South Africa itself.

BERTIL NORDENSTAM

WOOD STRUCTURE IN BIOLOGICAL AND TECHNOLOGICAL RESEARCH, edited by P. Baas, A. J. Bolton and D. M. Catling, with pp. 280, 28 fig., 25 plates. (Leiden Botanical Series No. 3.) ISBN 90 6021 302 5. Leiden University Press, 1976. (approx. R28,00).

Despite its title, this is a collection of studies in plant anatomy. It arose from the proceedings of the Anglo-Dutch Wood Anatomy Meeting, organised by the Royal Microscopical Society at Oxford and Kew in April 1976. Appropriately it opens with an entertaining essay on the history of the Jodrell Laboratory, with whose centenary this meeting coincided. The former Keeper, C. R. Metcalfe tells of the personalities and events that led to the establishment of what might be called the English School of systematic anatomy, at Kew. A useful survey by J. D. Brazier deals in general terms with the use of wood anatomical features in identification and in taxonomy, both of which present their own peculiar problems. This is well shown in the two detailed papers which follow. T. Baretta-Kuipers discusses the taxonomic position of the genera, and the relationship between the families in the Bonnetiaceae, Theaceae and Guttiferae, and G. van Vliet the identification and systematic and phylogenetic relationships within the Rhizophoraceae. R. den Outer and W. van Veenendaal investigate the effects of the rainforest and savanna environment (in West Africa) on within-species wood anatomical characters and try to distinguish them from the effects of phylogenetic drift. A short paper contributed by D. F. Cutler deals with a little-known field, variability of root wood structure and its comparison with trunk wood.

There have been many publications in recent years which deal with the distribution of siliceous inclusions and their value in taxonomy. In the present volume Ben ter Welle gives a comprehensive survey of the occurrence of silica in neotropical woods and concludes that it has considerable diagnostic value, especially at the species level. Probably the most interesting and significant contribution in this book is that of P. Baas, on xylem vessel variation in relation to environment and evolution. He gives a careful and well documented critique of Carlquist's theory of adaptive diversification, for which he finds rather limited evidence.

The book includes some interesting chapters on more general topics, such as aspects of branch abscission (J. Koek-Noorman and B. ter Welle), a somewhat neglected subject, and the examination of a theoretical model for liquid flow through tracheids and pits (A. J. Bolton). The cambial production of wood in relation to apical meristem activity is explored by M. P. Denne, and the origins of short term tracheid variation by E. D. Ford and A. W. Robards. Only three papers are of essentially technological interest, two dealing with structural failure and one with plastic impregnation, in relation to wood microstructure.

This book is exceptionally well produced. There is an attractive layout and good reproduction of the line drawings and photomicrographs. A particularly valuable feature is the adequate lists of references, to literature much of which may not be familiar to every botanist.

A. R. A. NOEL

Preliminary Announcement

THIRTEENTH INTERNATIONAL BOTANICAL CONGRESS

Sydney, Australia. 21–28th August, 1981

The Programme will consist of 12 sections—molecular, metabolic, cellular and structural, developmental, environmental, community, genetic, systematic and evolutionary, fungal, aquatic, historical, and applied botany. There will be plenary sessions, symposia, and sessions for submitted contributions (papers and posters). Chairman of the Programme Committee: Dr L. T. Evans.

Field Trips will include visits to arid and semi-arid regions, eucalypt forest, rain forest, heath, coastal vegetation (e.g. Great Barrier Reef, mangroves) etc., and specialist trips. Chairman of the Field Trips Committee: Prof. L. D. Pryor.

First Circular, containing details, will be mailed in August, 1979. Send your name and full address, preferably on a postcard, to ensure your inclusion on the mailing list.

Enquiries should be sent to the Executive Secretary, Dr W. J. Cram.

Congress address—13th I.B.C., University of Sydney, N.S.W. 2006, Australia.

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